

## Organizational creativity and remote working in the deployment of COVID-19 in Saudi Arabia



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### ABSTRACT

The objective of this research is to examine and assess the impact of the initial experiences of remote working in Saudi Arabia during the COVID-19 pandemic. Specifically, the study focuses on investigating the extent to which remote working in various economic and administrative sectors in Saudi Arabia has influenced organizational creativity. The research follows an exploratory approach, benefiting from unique insights obtained through a questionnaire distributed among employees of both Saudi and international companies. The questionnaire is designed around four key dimensions: changes in working practices, knowledge-creation processes, remote working, and organizational creativity. The methodology employed in this study involves weighted logistic regression to analyze the relationship between remote working and organizational creativity. The findings demonstrate that certain factors, such as learning, trust, autonomy, and remote working itself, have a positive impact on organizational creativity. These factors facilitate the independent generation of innovative and valuable ideas for services or products. On the other hand, centralization within organizations appears to discourage creative work. In conclusion, this research sheds light on the effects of remote working in Saudi Arabia during the COVID-19 pandemic and highlights the significance of factors that contribute to organizational creativity in the context of remote work. The findings have implications for businesses and policymakers seeking to promote creativity and innovation within their organizations during times of remote work arrangements.

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### 1. Introduction

Prior to the COVID-19 pandemic, remote working was not a prevalent practice in Saudi Arabia. This was primarily due to the absence of perceived necessity among Saudi organizations, resulting in infrequent attempts to implement remote work arrangements. Moreover, managerial skepticism regarding the feasibility of seamless remote work and concerns about its impact on productivity further contributed to the limited adoption. Additionally, the essential mechanisms, technologies, and knowledge to support remote working were lacking in Saudi firms (Wang et al., 2021).

Nonetheless, Béland et al. (2020) asserted that the future of work would embrace characteristics such as flexibility, mobility, temporariness, and technological mediation. The outbreak of the COVID-19 pandemic, coupled with travel restrictions, prompted numerous Saudi companies and administrations to swiftly adopt remote working practices. Consequently, some Saudi civil servants and workers have come to realize that their job tasks can be efficiently performed without face-to-face interactions and have become well-acquainted with the technologies essential for remote work.

Organizational creativity refers to the generation of innovative and valuable ideas by individuals or groups working collaboratively. In the context of Saudi organizations, it is crucial to identify and address any latent issues or inadequacies that may hinder organizational creativity. Factors that play a significant role in either facilitating or impeding organizational creativity include trust, information technology (IT) support, learning opportunities, job autonomy, and centralization. However, the present

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study specifically examines the correlation between remote working and organizational creativity.

Amabile's (1988) model of creativity is widely cited in the literature and posits that creativity and innovation are essential for any organization's success. The model suggests that the organizational environment influences individuals' and groups' creativity through three key components: expertise, creative skills, and motivation to complete tasks.

Koch et al. (2018), meanwhile, posited that organizational creativity refers to using the special features of products, people, and thought processes to achieve a state in which creativity can flourish. According to Amabile's (1988) theory, organizational creativity is influenced by three main factors: individual characteristics, group characteristics, and organizational characteristics. Gajendran et al. (2015) demonstrated that remote workers enjoy greater independence than in-person workers. In turn, Gilson and Shalley (2004) found that this autonomy in remote work is vital for creativity. It, therefore, appears that the greater autonomy that comes with remote working can enhance organizational creativity.

The practice of remote working is witnessing a surge in popularity in Saudi Arabia, and in many instances, it has become mandatory due to the COVID-19 pandemic. Consequently, both Saudi and non-Saudi organizations have been compelled to innovate and adapt their working practices to effectively implement remote work arrangements.

Globally, the proportion of individuals working from home on a permanent basis has risen to 18%, and there is speculation, supported by a recent study by the University of Chicago, that this figure may double in the future. Given this scenario and to address an existing gap in the literature, the present study aims to explore the impact of remote working on organizational creativity across various sectors of activity in Saudi Arabia. A survey utilizing a self-completed questionnaire was administered to employees in different economic sectors within the Kingdom of Saudi Arabia.

The findings of our research indicate that remote working has a negative effect on the generation of novel and valuable services or products. However, it is worth noting that this outcome may be influenced by the relatively short duration of the health crisis. On the other hand, remote working has a positive influence on an individual's capacity to produce innovative and valuable ideas for services or products. The subsequent sections of this paper are structured as follows: Section 2 elaborates on the research Materials and Methods, Section 3 presents the obtained results, and finally, Section 4 concludes the paper with a discussion of the implications and potential avenues for future research.

## 2. Materials and methods

To measure the effect of remote working, the degree of organizational creativity, and the reaction of the managers of Saudi companies and public

service institutions to the problems and challenges of remote working, we developed a questionnaire (Appendix A) based on four axes: Changes in working practices, knowledge-creation processes, remote working, and organizational creativity.

The questionnaire was sent to 300 Saudi companies, but managers and teleworkers only responded to 217 of these. The participants were spread over 186 public and private firms, of which 64% had more than 200 employees. Their responses allowed us to assess the relationship between organizational creativity and remote working in Saudi Arabia.

## 3. Results and discussions

Table 1 gives the descriptive statistics for the sample. These show that the average variance extracted ranges from 0.54 to 0.72, with the construct reliability ranging from 0.74 to 0.91, and the Cronbach's alpha ranging from 0.742 to 0.956. Convergent validity is therefore not a problem because all the values for average variance extracted are above 0.50 (Fornell and Larcker, 1981), all construct reliabilities are above 0.7 (Bagozzi and Yi, 1988), and Cronbach's alpha is above the recommended value of 0.6.

Reliability measures the internal consistency of the constructs in the study. A construct is said to be reliable if the alpha ( $\alpha$ ) value is greater than 0.70 (Hair et al., 2013). Construct reliability was assessed using Cronbach's alpha, and the results revealed that Learning with three scales, Creativity with four scales (Alpha=0.882), remote working with two scales (Alpha=0.742), Job autonomy with three scales (Alpha=0.956), Centralization with two scales (Alpha=0.939), Trust with three scales, and IT with three scales were found to be reliable (Alpha=0.903).

Table 2 gives the correlations matrix for all study variables, such that they all positively correlated with creativity. Table 3 presents the regression results for organizational creativity. For the first question on Creativity (Did your company produce many novel and useful services or products?), all regression coefficients were negative. This can be attributed to the relatively short period of the health crisis, and the conditions in which remote working was launched did not help to develop innovative new services or products that were better suited to remote working. Our results reveal that IT support is the most important factor in fostering an environment that supports employees in developing novel and useful ideas, followed by learning, trust, and autonomy. Centralization, in contrast, does not help to develop innovative new services or products.

The creation of a new unit to manage and supervise remote working depends on Learning, IT support, Autonomy, and Remote working. On the other hand, the creation of new specialized positions for managing telework is not influenced by any variable, implying that Saudi companies do not consider it an opportune time to create such positions.

**Table 1: Items, reliability, convergent, and discriminant validity**

Items	Mean	S.D.	Cronbach's α
<b>Learning (CR=0.80, AVE=0.58, Alpha=0.881)</b>			
LEA1: provides various formal training programs for performing duties	3.31	1.40	0.840
LEA2: Provides various training in new applications and remote working methods	3.08	1.44	0.789
LEA3: members are satisfied by the contents of job training or self-development programs	3.11	1.30	0.859
<b>Trust (CR=0.79, AVE=0.55, Alpha=0.928)</b>			
TRU1: have reciprocal faith in others' ability to work toward organizational goals	3.53	1.30	0.915
TRU2: have reciprocal faith in others' decisions toward organizational interests than individual interests	3.44	1.29	0.881
TRU3: have reciprocal faith in other members' intentions and behaviors	3.47	1.27	0.891
<b>Centralization (CR=0.91, AVE=0.72, Alpha=0.939)</b>			
CEN1: can take action without a supervisor (R)	3.01	1.33	0.886
CEN2: can make decisions without approval (R)	2.91	1.36	0.891
<b>Information Technology (IT) (CR=0.74, AVE=0.54, Alpha=0.903)</b>			
ITS1: provides IT support for collaborative works regardless of time and place	3.31	1.37	0.864
ITS2: provides IT support for simulation and prediction	3.00	1.39	0.882
ITS3: provides IT support to facilitate dealing with customers or citizens	3.48	1.36	0.865
ITS4: Provides IT support to facilitate remote working	3.44	1.40	0.885
<b>Job autonomy (CR=0.86, AVE=0.54, Alpha=0.956)</b>			
JAUT1: were able to deal with all customers and citizens without the help of external specialists	3.45	1.29	0.928
JAUT2: have significant autonomy in determining what they do and how they do their job	3.50	1.27	0.938
JAUT3: have basically your own boss	3.51	1.27	0.938
<b>Remote working (CR=0.75, AVE=0.60, Alpha=0.742)</b>			
telew1: Started telework due to the emergency statement	3.55	1.50	0.813
telew2: Continuous telework after the emergency statement	2.90	1.53	0.822
<b>Creativity (CR=0.77, AVE=0.61, Alpha=0.882)</b>			
OC1: has produced many novels and useful services/or products	3.35	1.44	0.968
OC2: fosters an environment that is conducive to our own ability to produce novel and useful ideas (services/products)	3.35	1.34	0.848
OC3: created a new unit to manage and follow remote working	2.86	1.48	0.828
OC4: created new positions for officials specialized in managing remote working in our organization	2.72	1.52	0.846

Note: All items were measured on five-point response scales; Fit Statistics: RMSE=0.084, SRMR=0.07, GFI=0.86, AGFI=0.81, CFI=0.98, NFI=0.97

**Table 2: Correlations matrix**

	Learning	Trust	Centralization	IT	Autonomy	Remote working	Creativity
Learning	1	.661**	.498**	.765**	.608**	.634**	0.680**
Trust	.661**	1	.623**	.727**	.743**	.584**	0.627**
Centralization	.498**	.623**	1	.583**	.561**	.479**	0.506**
IT	.765**	.727**	.583**	1	.761**	.617**	0.746**
Autonomy	.608**	.743**	.561**	.761**	1	.586**	0.683**
Remote working	.634**	.584**	.479**	.617**	.586**	1	0.684**
Creativity	.680**	.627**	.506**	.746**	.683**	.684**	1

\*\* : Significance level at 0.05 level

Now, the most important question in this study is this: Does remote working affect organizational creativity in Saudi companies? Our results revealed that telework did indeed have a positive impact on creativity, such as by coming up with novel and useful ideas for services or products, in our sample companies. In addition, this positive relationship was stronger in public Saudi companies and multinational firms than it was in private firms. This finding generally accords with the work of Vega et al. (2015), who reported telework had a positive effect on objectively rated creativity. In contrast, our study reported a weak positive effect of telework on creativity. This difference may be due to our sample comprising professional employees working in various economic sectors, whereas the sample of Vega et al. (2015) consisted of supervisors and non-supervisors in government organizations. Remote working was a significant predictor for all categories of organizational creativity. The odds ratio of 0.330 indicates that for every one-unit increase in remote working, the odds of a person producing many novel and useful ideas for services or products increased by a factor of 0.330. These findings were reinforced during the current COVID-19 crisis because the study of Brakman et al. (2020) showed that employers and employees tried to create more leeway and respond flexibly to new challenges. Next, we examined the effects of autonomy on

organizational creativity through the lens of the second research question: Does autonomy mediate the impact of telework on creativity? We found that autonomy does indeed mediate the effect of telework on creativity. The direct positive impact of the extent of telework on autonomy is not consistent with previous findings (Gajendran et al., 2015; Sardeshmukh et al., 2012). In addition, in line with the work of Amabile et al. (1996), autonomy had a positive direct impact on creativity in Saudi companies. Although prior studies have reported the role of autonomy in mediating between the extent of telework and job-related outcomes such as job satisfaction (Gajendran and Harrison, 2007), engagement (Sardeshmukh et al., 2012), and performance (Gajendran et al., 2015); it has never been linked to creativity. The results also showed that information technology (IT) support positively impacts creativity due to the increasing use of technology in daily work (Béland et al., 2020) and changes in working hours (Gaudecker et al., 2020). This suggests that employees in Saudi companies can work in new ways, use technology to a greater extent, and enjoy more autonomy. Nevertheless, much remains to be done to ensure good remote working in Saudi companies. Indeed, most companies never planned their response to a new pandemic and an associated general curfew because it seemed extremely unlikely.

**Table 3:** Weighted logistic regression on organizational creativity

	B	Std. error	Wald	df	Sig.	Exp(B)	95% IC for Exp(B)	
							Lower bound	Upper bound
<b>Creativity 1</b>								
Intercept	8.032	1.809	19.704	1	.000			
Learning	-.976	.362	7.281	1	.007	.377	.185	.766
Trust	-.128	.385	.110	1	.740	.880	.413	1.873
Centralization	-.110	.318	.121	1	.728	.896	.480	1.670
IT	-.227	.445	.261	1	.609	.797	.333	1.906
Autonomy	-.893	.352	6.445	1	.011	.409	.205	.816
Remote working	-1.108	.316	12.295	1	.000	.330	.178	.613
sector	.354	.173	4.203	1	.040	1.424	1.016	1.997
type	.517	.447	1.337	1	.248	1.678	.698	4.032
size	-.180	.279	.417	1	.519	.835	.483	1.444
<b>Creativity 2</b>								
Intercept	-14.009	2.468	32.208	1	.000			
Learning	1.023	.456	5.040	1	.025	2.782	1.139	6.796
Trust	1.015	.498	4.149	1	.042	2.758	1.039	7.323
Centralization	-.140	.435	.104	1	.747	.869	.370	2.040
IT	1.877	.644	8.499	1	.004	6.536	1.850	23.094
Autonomy	.826	.486	2.893	1	.089	2.285	.882	5.921
Remote working	1.370	.436	9.873	1	.002	3.935	1.674	9.248
sector	-.488	.226	4.647	1	.031	.614	.394	.957
type	-.893	.610	2.145	1	.143	.409	.124	1.353
size	.075	.353	.045	1	.832	1.078	.540	2.151
<b>Creativity 3</b>								
Intercept	-9.008	2.215	16.535	1	.000			
Learning	.576	.343	2.821	1	.093	1.779	.908	3.483
Trust	-.481	.373	1.666	1	.197	.618	.298	1.283
Centralization	-.004	.262	.000	1	.989	.996	.596	1.665
IT	.914	.406	5.076	1	.024	2.495	1.126	5.527
Autonomy	.990	.386	6.556	1	.010	2.690	1.261	5.738
Remote working	.667	.305	4.777	1	.029	1.949	1.071	3.546
sector	.185	.143	1.680	1	.195	1.204	.909	1.593
type	-.184	.397	.216	1	.642	.832	.382	1.812
size	-.457	.260	3.096	1	.079	.633	.381	1.053
<b>Creativity 4</b>								
Intercept	6.332	2.190	8.360	1	.004			
Learning	-.182	.340	.288	1	.592	.833	.428	1.623
Trust	-.296	.384	.593	1	.441	.744	.351	1.579
Centralization	-.023	.266	.007	1	.931	.977	.580	1.647
IT	-.890	.427	4.353	1	.037	.411	.178	.947
Autonomy	-.631	.380	2.761	1	.097	.532	.253	1.120
Remote working	-.188	.302	.390	1	.532	.828	.459	1.496
sector	.082	.145	.317	1	.573	1.085	.817	1.442
type	-.040	.405	.010	1	.921	.961	.434	2.125
size	.525	.293	3.208	1	.073	1.691	.952	3.006

In this regard, we can assume that both public and private Saudi companies that implemented remote working relied on employees to share the responsibility for continuing their activities and adapting them to the new reality. Moreover, the Saudi authorities' interventions during the COVID-19 pandemic included directives related to ensuring a climate of trust between employers and employees as a way of facilitating the development of remote working practices. The goodness of fit (Table 4) includes the deviance and Pearson chi-square tests, which are useful for determining whether a model has a good fit with the data. Non-significant test results indicate that the model fits the data well, and our results for the Pearson's chi-square test indicate that the model fits well with the data ( $\chi^2(792)=7941.410$ ,  $P=0.499$ ), while the Deviance chi-square results also indicate a good fit ( $\chi^2(792)=524.336$ ,  $P=1.000$ ). The results also comprised likelihood ratio tests in Table 5 for the overall contribution of each independent variable to the model. Using the conventional ( $\alpha=0.05$ ) threshold, we found that IT, Autonomy, and Remote working were significant predictors in the model, although size was also "nearly significant" at  $p$ -value=0.091.

**4. Conclusion**

The COVID-19 pandemic compelled Saudi companies and institutions to swiftly transition their employees' activities to online platforms whenever feasible. This study examines the impact of telework on organizational creativity and explores the measures taken by Saudi leaders and managers to effectively manage remote teams. The successful adoption of remote working practices by Saudi organizations depended on their preparedness for telework. Although the establishment of a new remote working system typically requires years to mature and optimize, Saudi and non-Saudi companies managed to surmount most challenges by providing adequate training.

**Table 4:** Goodness of fit

	Chi-Square	df	Sig.
Pearson	791.410	792	.499
Deviance	524.336	792	1.000

Organizational creativity serves as a crucial catalyst for subsequent innovations at both team and organizational levels. In this study, we assess the influence of remote working on the creativity of Saudi companies. Additionally, we endeavor to

establish links between remote working and organizational creativity by investigating the underlying mechanisms associated with key

variables, namely learning, IT support, trust, autonomy, and centralization.

**Table 5: Likelihood ratio tests**

Effect	Model fitting criteria			Likelihood ratio tests		
	AIC reduced model	BIC of reduced Model	-2 log-Likelihood of reduced model	Chi-square	df	Sig.
Constant	640.825	762.501	568.825	38.944	4	.000
Learning	605.118	726.794	533.118	3.237	4	.519
Trust	606.722	728.399	534.722	4.842	4	.304
Centralization	603.591	725.267	531.591	1.710	4	.789
IT	615.175	736.852	543.175	13.295	4	.010
Autonomy	612.620	734.296	540.620	10.739	4	.030
Remote working	616.220	737.896	544.220	14.339	4	.006
Sector	608.203	729.879	536.203	6.322	4	.176
Type	605.160	726.837	533.160	3.280	4	.512
Size	609.902	731.578	537.902	8.021	4	.091

The Chi-square statistic is the difference in the -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The hypothesis is null if all the parameters of this effect are equal to zero

Our findings reveal that IT support, learning, and autonomy exert the most positive influence on organizational creativity, with trust following suit, while centralization does not foster the rapid development of remote working capabilities. These findings corroborate previous research highlighting the significance of foundational IT infrastructure, learning opportunities, and autonomy in fostering creativity. Overall, this research demonstrates that remote work has a favorable impact on organizational creativity, which represents the distinct ability to generate novel and valuable ideas.

This research offers valuable insights to Saudi business leaders and managers on how to promote creativity in the context of remote working by emphasizing the importance of training, trust-building, IT support, and autonomy. Consequently, managers of Saudi companies must grasp the mechanisms through which employees can leverage new technologies and cultivate an atmosphere of innovation, thereby enhancing working practices and fostering organizational creativity.

**Appendix A. Survey on organizational creativity and remote work development in Saudi companies**

In response to the imperative of mitigating the spread of COVID-19, remote working was actively advocated as a precautionary measure, commencing on March 2, 2020. As a result, a significant number of

employees made a transition from conventional office-based work to telework arrangements. We posit that this profound shift, occurring both during and after the COVID-19 pandemic, has had notable implications for working practices and organizational creativity within Saudi companies. The responses provided through this questionnaire will play a crucial role in our investigation and exploration of the aforementioned matters.

We sincerely appreciate your invaluable support and cooperation in participating in this study. Please be assured that any personal information you provide is treated with the utmost confidentiality and is protected in accordance with ethical guidelines.

**Table A1: The questionnaire part 1**

Activity sector	1 = Yes	0=Otherwise
	Retail/wholesale	
Manufacturing		
Information technology		
Real estate		
Health service		
Other sectors		
<b>Firm type</b>		
State company		
Private/limited/joint stock company		
Foreign/multinational company		
<b>Firm size</b>		
Below 50 employees		
50-99 employees		
100-199 employees		
200 employees and above		

1: Very low; 2: Low; 3: Medium; 4: High; 5: Very high

**Table A2: The questionnaire part 2**

Construct	Working ways change	Items				
		1	2	3	4	5
Learning (LEA; three items)	Our company ...					
	LEA1: provides various formal training programs for performing duties.					
	LEA2: provides various training in new applications and remote-working methods. LEA3: members are satisfied with the contents of job training or self-development programs.					
Trust (TRU; three items)	Our company members ...					
	TRU1: have mutual faith in their abilities to work toward organizational goals					
	TRU2: have mutual faith in their decisions being oriented toward organizational rather than individual interests TRU3: have mutual faith in others' intentions and behaviors					
Centralization (CEN; two items) IT support (ITS; four items)	Our company ...					
	ITS1: provides IT support for collaborative works, regardless of time and place.					
	ITS2: provides IT support for simulation and prediction.					
	ITS3:provides IT support to facilitate dealing with customers or citizens					
	ITS4: Provides IT support to facilitate remote working ITS2: provides IT support for simulation and prediction ITS3:provides IT support to facilitate dealing with customers or citizens					

	ITS4: Provides IT support to facilitate remote working
	<b>Knowledge creation processes</b>
	Our company members ...
Job autonomy (JAUT, two items)	were able to deal with all customers and citizens without the help of external specialists JAUT2: have significant autonomy in determining what they do and how they do it
	<b>Remote working</b>
	Our company members ...
Remote working (Remote working; two items)	Telew1: started remote working due to the emergency statement. Telew2: Continued remote working after the emergency statement
	<b>Organizational creativity</b>
	Our company...
	OC1: has produced many novel and useful services or products.
Creativity (OC; four items)	OC2: fosters an environment that is conducive to our own ability to produce novel and useful ideas for services or products OC3: created a new unit to manage and follow remote working. OC4: created new positions for officials specialized in managing remote working in our organization

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## Compliance with ethical standards

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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